

PATENT

CLAIMS

I claim:

1. A structural laminate comprising:  
first and second skins of sheet metal, each of said skins having a thickness of at least about 0.005 in.;  
a fibrous core disposed between said skins of sheet metal; and  
said fibrous core being bonded to said skins of sheet metal.
2. The structural laminate recited in claim 1, wherein said sheet metal is selected from the group consisting of cold rolled steel, galvanized steel, tin-coated steel and stainless steel.
3. The structural laminate recited in claim 1, wherein said fibrous core is adhesively bonded to said skins of sheet metal.
4. The structural laminate recited in claim 1, wherein each of said skins has a thickness of from about 0.005 in. to about 0.030 in.

PATENT

5. The structural laminate recited in claim 1, wherein said fibrous core is impregnated with a resin.

6. The structural laminate recited in claim 1, wherein said fibrous core has a thickness of at least about 0.01 in.

7. The structural laminate recited in claim 1, wherein said fibrous core has a thickness of from about 0.01 in.. and 0.05 in.

8. The structural laminate recited in claim 1, wherein said laminate is a structural panel.

9. The structural laminate recited in claim 1, further including layers of adhesive disposed between said fibrous core and each of said skins.

10. The structural laminate recited in claim 1, wherein said fibrous core is paper.

11. The structural laminate recited in claim 1, wherein said fibrous core is a synthetic polymer.

PATENT

12. The structural laminate recited in claim 1, further including a plurality of channels extending through said fibrous core and extending between said metal skins.

13. The structural laminate recited in claim 12, wherein said channels are filled with adhesive to form adhesive bridges between said metal skins.

14. The structural laminate recited in claim 1, wherein said sheet metal skins are zinc coated steel which has been cold rolled with zinc on the surface.

15. The structural laminate recited in claim 1, wherein said fibrous core is a plurality of webs of fiber adhesively bonded to each other.

16. The structural laminate recited in claim 1, wherein said laminate is non-planar.

17. The structural laminate recited in claim 1, wherein said metal skins are steel which has been pretreated with a conversion coating to promote bond integrity and corrosion resistance.

18. The structural laminate recited in claim 1, wherein said metal skins are formed of low carbon micro-alloyed high-strength steel.

PATENT

19. The structural laminate recited in claim 1, further including a flame retardant in said fibrous core.

20. A method of forming a structural laminate comprising:  
providing first and second skins of sheet metal, each of said skins having a thickness of at least about 0.005 in.;  
providing a fibrous core; and  
adhesively bonding said fibrous core to said skins such that said fibrous core is disposed between said skins.

21. A method of forming a non-planar laminate comprising the steps of:  
providing first and second skins of sheet metal, each of said skins having a thickness of at least about 0.005 in.;  
providing a fibrous core;  
placing said fibrous core between said skins and in contact therewith thereby creating a laminate structure; and  
metal forming said laminate structure to form said non-planar laminate.